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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Shiwen Chen

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EXAMINER

WIDHALM, ANGELA M

ART UNIT

PAPER NUMBER

2152

DATE MAILED: 09/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/614,542	CHEN, SHIWEN	
	Examiner	Art Unit	
	Angela Widhalm	2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,8-10,13-16,18,24,26-29,31-37,39-41,43 and 45-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8-10,13-16,18,24,26-29,31-37,39-41,43 and 45-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 July 2006 has been entered.

2. Claims 1, 9, 13, 18, 24, 26-29, 31, and 41 have been amended. Claims 2, 6-7, 11-12, 17, 19-23, 25, 30, 38, 42, and 44 were cancelled. The claims 1, 3-5, 8-10, 13-18, 24, 26-29, 31-37, 39-41, 43, and 45-49 are pending in this application.

3. The text of those sections of Title 35, U.S. Code 103 not included in this action can be found in a prior Office action.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 3-5, 8-10, 13-18, 24, 26-29, 31-37, 39-41, 43, and 45-49 have been considered but are moot in view of the new ground(s) of rejection.

Response to Amendment

Claim Objections

5. Claims 43 and 31 are objected to because of the following informalities:
- a. Claim 43 claims a dependency on claim 42, which has been cancelled.
 - b. Claim 31 line 9 states "reformatting the options **filed** to remove..."
- Examiner interprets this to mean "reformatting the options **field** to remove..."
- Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. Claims 1, 3-5, 8-10, 24, 26-29, 31-37, 39-41, 43, and 45-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Farinacci et al. (U.S. Patent 7,016,351), hereafter referred to as Farinacci.
7. Regarding claims 1, 9, and 24, Park disclosed a method for routing data packets in a packet-switched network, comprising:
- receiving a data packet at a network routing device residing in the network, the data packet being formulated in accordance with the Internet Protocol (IP) to have a packet header including a destination IP address field (see Park fig. 4 #4-3), a source IP address field (see Park fig. 4 #4-2), and an options field (see Park fig. 4 #4-4) having a stack of two or more private IP addresses (see Park fig. 5 #5-4 and #5-7, paragraph 31; *Two IP addresses, a source and a destination address, are stored in the options field.*

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Only private Internet address information is saved in the options field. Public Internet address information is saved in the packet header);

extracting a private IP address directly from the options field (see Park paragraph 40; *Address extraction is inherently included when exchanging address information between various fields in the packet. In order for the private address from the options field to be moved to the general header, it is first extracted*);

directly formatting the destination IP address field of the packet header with the extracted private IP address prior to forwarding the data packet; and (see Park paragraphs 40-42, fig. 6; *In step 116, the IP packet is forwarded. Prior to this, in steps 108-112 public and private Internet addresses are exchanged and private Internet addresses are moved to the general header*)

reformatting the options field to remove the extracted private IP address from the stack prior to forwarding the data packet (see Park paragraphs 40-42; *When the private address from the options field was exchanged and moved to the general header, the private address was first extracted and then moved to the general header. The private address is no longer in the options field at this point*).

Park did not explicitly disclose addresses are appended to each other in a predefined order and defining a path to a device residing in a private network.

However, in a related art, Farinacci disclosed appending IP addresses to an address list (see col 15 lines 48-50) and also including delivery tree information in a packet header (see col 2 lines 10-29).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate delivery trees into packet headers as described by Farinacci into Park's routing system to reduce processing performed by each router and therewith reduce the amount of network bandwidth used (see Farinacci col 1 lines 26-32, col 2 lines 1-29) and also the required processing time (see Park paragraph 5).

8. Regarding claim 3, Park-Farinacci disclosed forwarding the data packet through a private-side interface of the network routing device (see Park paragraphs 40-41).

9. Regarding claim 4, Park-Farinacci disclosed defining the options field of the packet header to include an embedded address indicator which indicates the presence of the at least one private IP address in the options field (see Park paragraph 31, options class 5-1).

10. Regarding claims 5 and 10, Park-Farinacci disclosed formatting the destination IP address field when an IP address residing in the destination IP address of the packet header matches a public-side interface IP address for the network routing device (see Park paragraphs 40-41).

11. Regarding claim 8, Park-Farinacci disclosed repeating the process of extracting and formatting at each network routing device interposed between a public network and a destination network device, wherein, to an extent that multiple routers are interposed

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between a public network and a destination host in a private network, another private IP address is directly extracted from the options field and directly inserted into the destination IP address field of the packet header at each intermediate routing device, thus ensuring that the data packet is routed in a peer-to-peer manner from a source host to a destination host (*see Park fig 1 #14a-c are routers; paragraphs 40-41 provide a method of exchanging data with devices outside of the private network, in order to achieve this aspect, there must be at least the routers the data must traverse until data reaches its destination*).

12. Regarding claim 26, Park-Farinacci disclosed a private IP address is extracted from the destination address field by a network routing device interposed between a public network and the destination device (*see Park paragraphs 40-41, fig 1; Address extraction is inherently included when exchanging address information between various fields in the packet. In order for the private address from the options field to be moved to the general header, it is first extracted. Additionally, there are routers 14a-14d between the public Internet network and the private Internet network. If the destination is a private Internet network and the packet traverses a public Internet network, the router is between the two and extracts a private IP address*).

13. Regarding 27, the claim contains the limitations contained in claims 1 and 26 and is rejected according to the same prior art.

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14. Regarding claim 28, Park-Farinacci disclosed the source address field is extracted from the options field at the destination device and reformatted into the destination address field of the options field for subsequent communication with the source device (see Farinacci figs 3-4, col 6 lines 21-38; *a table stores the parent node and its address for each node in the table*)

15. Regarding claim 29, Park-Farinacci disclosed the source address field and the destination address field further include a flag byte and a length byte (see Park paragraphs 31, 33; *The option class field 5-1 indicates if the private Internet is defined in the options field. This is functionally equivalent to the claimed flag byte. Also, the option length field 5-2 contains data on the length of the address information; see Farinacci col 5 lines 10-15; A length field contains the number of addresses in the address list*).

16. Regarding claim 31, the claim contains the limitations of claim 1 and is rejected according to the same prior art.

17. Regarding claim 32, the claim contains the limitations of claim 4 and is rejected according to the same prior art.

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18. Regarding claim 33, Park-Farinacci disclosed setting said indicator to a second state when no destination addresses remain in said options field (see Farinacci col 7 lines 53-58, col 18 lines 20-26, col 21 lines 56-67).

19. Regarding claim 34, Park-Farinacci disclosed said indicator is in said first state when said indicator is non-zero (see Park paragraphs 31, 33).

20. Regarding claims 35 and 45, Park-Farinacci disclosed updating said indicator, wherein said indicator indicates how many destination (claim 35) or source (claim 45) addresses remain in said options field (see Farinacci col 5 lines 10-15; *A length field contains the number of addresses in the address list*).

21. Regarding claim 36, the claim contains the limitations of claim 1 and is rejected according to the same prior art.

22. Regarding claims 37 and 43, the claims contain the limitations, substantially as claimed, as described above in claims 29 and 35, and are rejected according to the same prior art.

23. Regarding claims 39 and 46, the claims contain the limitations of claims 14-15 and are rejected according to the same prior art.

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24. Regarding claims 40 and 47, the claims contain the limitations of claim 1 and are rejected according to the same prior art.

25. Regarding claim 41, Park-Farinacci disclosed the invention, substantially as claimed, as described in claim 1 above, further comprising:

reading a first source address from said source address field of the packet header; inserting said first source address into a source address of said options field (see Park paragraphs 40-41; *During the address exchange, the source address from the packet header is moved to the options field*);

placing a public address of the routing device into said source address field of the packet header; forwarding said packet out a second interface to a destination device (see Farinacci col 2 lines 10-29; *Packets are forwarded by the intervening routers. As a part of the forwarding process, the source address is replaced with the address of the router sending the packet*);

reading the first source address from the source address field of the options field; formatting an outgoing data packet from the destination device with the first source address in the destination address field of the options field (*Using the reverse of the route packets traveled from the source device to the destination device would have been obvious to one of ordinary skill in the art*).

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26. Regarding claims 48-49, the claims contain the limitations, substantially as claimed, as described in claims 1 and 41 and are rejected according to the same prior art.

27. Claims 13-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park-Farinacci, in view of what was well known in the art.

28. Regarding claim 13, Park-Farinacci disclosed the invention, substantially as claimed, as described above in claim 3, further comprising:

directly formatting the source IP address field of the packet header with an IP address for the network routing device prior to forwarding the data packet; formatting the source IP address field of the packet header with a public interface IP address for the another network routing device prior to forwarding the data packet (see Farinacci col 2 lines 10-29; *Packets are forwarded by the intervening routers. As a part of the forwarding process, the source address is replaced with the address of the router sending the packet*).

Examiner takes Official Notice (see MPEP 2144.03 Reliance on "Well Known" Prior Art) that storing an original source private IP address in the source IP address field of the packet header instead of the public IP address disclosed by Park-Farinacci would have been an obvious variation to one of ordinary skill in the art at the time of invention.

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29. Regarding claim 14, Park-Farinacci disclosed receiving the data packet at a private-side interface of the network routing device (see Park paragraphs 40-41).

30. Regarding claim 15, Park-Farinacci disclosed forwarding the data packet through a public-side interface of the network routing device (see Park paragraphs 40-41).

31. Regarding claim 16, Park-Farinacci disclosed receiving the data packet at a network device having an IP address that matches the destination IP address embedded in the destination IP address field; and extracting the original source private IP address from the options field and the IP address for the network routing device from the source IP address field of the packet header for subsequent communications with the originating network device (see Park paragraphs 40-42).

32. Regarding claim 18, Park-Farinacci disclosed the invention, substantially as claimed, as described above in claim 16, further comprising extracting the IP address for the network routing device from the options field and the IP address for the another network routing device from the source IP address field of the packet header for subsequent communications with the originating network device (see Park paragraphs 40-42, Farinacci col 3 lines 59-60, col 4 lines 16-18).

Conclusion

33. **Examiner's Note:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela Widhalm whose telephone number is (571) 272-1035. The examiner can normally be reached M-F, 8:30 am - 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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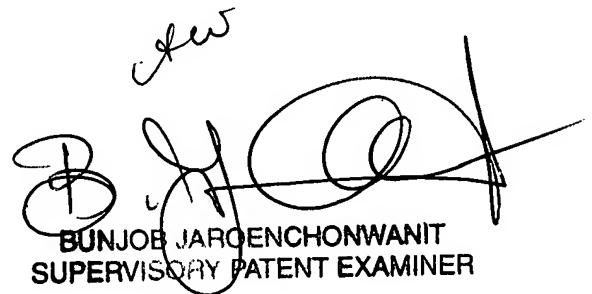
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AW, 11 September 2006

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